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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/630,950	07/30/2003	Clifford E. Lucas	06401 USA	1784

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EXAMINER	
LEUNG, RICHARD L	

ART UNIT	PAPER NUMBER
3744	

DATE MAILED: 11/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/630,950	LUCAS ET AL.	
	Examiner	Art Unit	
	Richard L. Leung	3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 August 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2,3,5-7,9-12,14,15,17-19 and 21-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *25-28* is/are allowed.

6)☒ Claim(s) *2,3,5,6,9-12,14,15,17,18 and 21-24* is/are rejected.

7)☒ Claim(s) *7 and 19* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 2, 3, 5, 6, 9-12, 14, 15, 17, 18, and 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5689141 (Kikkawa et al.) in view of "Design, simulation create low surge, low cost gas-injection compressor" (Zeckendorf et al.). Kikkawa et al. disclose a system and method for liquefying natural gas, which is considered equivalent to a baseload LNG plant as defined in paragraph [0003] of the present specification, comprising the use of refrigerant gas compressors 1-3, each having a gas inlet and a gas outlet and being driven by single-shaft gas turbines 4 and 6 that have a maximum power. Specifically, single-stage compressor 1 is driven by gas turbine 4 and compressors 2 and 3 that create a multi-stage compressor system is driven by gas turbine 6. See particularly column 5, lines 59-67 and Fig. 1. Kikkawa et al. further disclose the use of vessels (denoted schematically) in fluid communication with the inlet conduits of the compressors 1-3 (see Fig. 2). Kikkawa et al. fail to disclose the use of a recycle pressure relief device in fluid communication with the gas outlet of the compressors, the recycle pressure relief device adapted to receive a stream of a compressed gas having a discharge pressure from the gas outlet and a conduit in fluid communication with the gas inlet, whereby the gas inlet receives at least a portion of the stream of the compressed gas transmitted to the conduit from the recycle pressure relief device when the discharge pressure reaches a designated pressure, and further fail to

disclose at least one additional recycle pressure relief device in fluid communication with the gas outlet, the additional recycle pressure relief device adapted to receive an additional stream of the compressed gas from the outlet. Referring particularly to Fig. 3c, Zeckendorf et al. teach a system and method to prevent surging in a gas compression system comprising a compression system, which may be driven by a gas turbine (see page 57, paragraph 7), wherein each compressor is provided with two recycle pressure relief valves (designated as "recycle" and "hot anti-surge") in communication with the outlet of each compressor that are each adapted to receive a stream of compressed gas having a discharge pressure from the compressors whereby at least a portion of the gas from the compressor outlet is recycled back to the compressor inlet through a conduit from the pressure relief valves when the discharge pressures reach a designated value (i.e. surge conditions). See also discussion of "Configuration C" in column 4 of page 59. Zeckendorf et al. also teach the inclusion of a vessel (knockout drum) in fluid communication with the gas inlet of each compressor such that at least a portion of the stream of the compressed gas in the inlet conduit is transmitted to the vessel. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have provided each refrigerant gas compressor 1-3 in the system disclosed by Kikkawa et al. with the recycle pressure relief device arrangement (i.e. recycle and anti-surge pathways) because Zeckendorf et al. explicitly teach that this configuration effectively prevents surging in the system.

Allowable Subject Matter

3. Claim 25-28 are allowed.

4. Claims 7 and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

5. Applicant's arguments, filed 4 August 2005, with respect to the objections to claims 25-27 have been fully considered and are persuasive in view of the amendment to the claims. The objections of claims 25-27 have been withdrawn.

6. Applicant's arguments, filed 4 August 2005, with respect to the rejections of claims 2, 3, 5, 6, 9-12, 14, 15, 17, and 21-24 under 35 U.S.C. 103(a) have been fully considered but they are not persuasive. Applicant asserts that neither Kikkawa et al. nor Zeckendorf et al. demonstrate the claimed recycle pressure relief device or valve, and therefore the rejections of the claims are improper. The Examiner respectfully disagrees. Applicant indicates that each claimed embodiments comprise "a compressor system...wherein each compressor has one or more recycle pressure relief devise or valves that allow the recycling of at least a portion of the compressed gas from the compressor outlet to the compressor inlet..." (Remarks, page 10, lines 7-10). As discussed in the above rejections and in Applicant's remarks (page 10, lines 2-3), Zeckendorf et al. teach the use of recycle and anti-surge valves in a compressor system wherein the valves function to transmit compressed gas from the compressor outlet back to the suction line leading to the compressor inlet at a designated pressure (i.e. surge conditions). Accordingly, the Examiner considers these valves to have the same arrangement and perform the same function as the recycle pressure relief device as

claimed, and therefore they meet the claimed limitation. While Applicant asserts that the present specification "clearly differentiates" between the recycle pressure safety valves from the anti-surge valves within Applicant's own invention, it is explicitly discussed in paragraphs [0040] and [0041] that the recycle pressure safety valves can serve as anti-surge valves, and that that recycle pressure safety valves may open when the compressor enters surge. Therefore without a clear demonstration of any structural differences or differences in arrangement in the claims, Applicant's repeated statements that the valve arrangement taught by Zeckendorf et al. is not a recycle pressure relief device or valve amount to a mere general allegation that the claims define a patentable invention, and therefore said statements are not convincing.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard L. Leung whose telephone number is 571-272-4811. The examiner can normally be reached on Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl J. Tyler can be reached on 571-272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Richard L. Leung
Examiner
Art Unit 3744

rll

MELBA N. BUMGARNER
PRIMARY EXAMINER